

ENYEDI, FRUZZSINA

enyedi.fruzsina94@gmail.com

PhD student (Department of Economic and Social Geography, University of Szeged)

PAPP, SÁNDOR

papp.sandor.geo@gmail.com

PhD student (Department of Economic and Social Geography, University of Szeged)

PÁL, VIKTOR

pal.viktor@geo.u-szeged.hu

Associate Professor (Department of Economic and Social Geography, University of Szeged)

Urban Noise Conflicts in Szeged



ABSTRACT

Noise pollution is a serious and complex city problem. While there are objective, measurable parameters for noise mapping assessments, since the effects of noise are also subjectively perceived, it has been difficult to accurately evaluate the urban problems and conflicts arising from noise. Urban noise and its perception is related to the quality of life; thus its analysis is can provide useful insights for decision-makers. Therefore, through an analysis of online media content, the paper presents local the attitudes in Szeged towards urban noise. During the analysis different noise categories and the city's noise characteristics were determined. Even though the noise pollution in residential areas was found to be mainly concentrated in the city centre, it also affected more remote areas, and social problems and political discourses were also identified. Besides the noise of urban traffic, Szeged people appeared to be disturbed by noise related to leisure activities, such as urban (and university) programs and festival noise, which indicated that noise reduction efforts should be focus on more than just the reduction of traffic noise.

KEYWORDS

noise pollution, social conflicts, noise map, subjectivity

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INTRODUCTION

Noise pollution has been a growing urban environmental problem during the 20th century. As dynamic urban development and motorization have transformed cities (MANGALEKAR – JADHAV – RAUT 2012), there has been a rise in environmental problems: air pollution, water pollution, soil pollution, noise pollution and waste: which in turn have led to an increase in urban health problems (THONGYOU et.al. 2014; OZER et.al. 2009). Most of the previous researches focused on the pollution of air, soil or waters, while noise pollution and the conflicts related to it were often neglected. Despite noise abatement efforts, noise remains a complex urban problem for most people as it not only results in health risks (FAJERSZTAJN et.al. 2019) but can also generate social conflicts that require local policy responses.

The main goal of this research was to analyse online media to identify the main sources of noise in Szeged, Hungary. Through an analysis of social discourses around the noise, break these sources down into specific noise categories to distinguish the noise sources that most disturbed locals. Therefore, the primary aim of this research was to highlight the main noise problems of the residents to identify the areas that need special policy attention. The identification of these problems contribute to the policies aiming the reduction city noise complaints, developing a more liveable, healthier, socially harmonious urban environment and increasing Szeged's environmental sustainability.

NOISE POLLUTION AND THE BACKGROUND TO STRATEGIC NOISE MAPPING

Noise is any unwanted sound that causes a disturbance or is harmful (SMETANA, 1975). Pure musical sounds can also be perceived as noise and unexpected sound effects can also be classified as noises. There are an irregular mix of sounds that have different vibrations and intensities

that are ‘without musical quality’ and can cause feelings of discomfort (DÉSI 2001). As people do not perceive noise in the same way, what counts as noise is subjective (WEINSTEIN 1980), which makes it difficult to resolve many noise-related problems, that is, whether a certain sound qualifies as noise depends on the given situation, the frequency and intensity and the age and gender of the complainant (SIMO – CLEARY 2013; NAGYMAJTÉNYI 2006).

Noise has been found to interfere with people’s activities in various ways, with noise in everyday life being found to affect people in their homes (ZHENG et.al. 1996), in their workplaces (LAMB – KWOK 2016), in nightclubs, on the street (BAROS 2012).

When there is continuous noise, conflicts can arise between various social groups. The various noise sources have generally been defined under certain groupings. In general, noise pollution is the point source pollution that is associated with various industrial (HATTA 2000), agricultural and recreational facilities, can be a linear source (GHOTBI et.al. 2012), and can occur along busy roads (ARANA – GARCÍA 1998) near airports, or connected to traffic (BLACK et.al. 2007; SADR 2014). Municipal noise exposure can be the sum of all the different noise sources (OMUBO-PEPPLE – BRIGGS-CHAMBER – TTAMUNOBERETON-ARI 2010): transport (FILHO – LENZI – ZANNIN 2004), services, industrial, construction and neighbourhood (ZENTAI – SCHÁD 2001; WANG – PEREIRA – HUNG 2004). These combinations form what is known as a unique ‘noise character’, which can be regulated by appropriate urban planning (FODOR 2001).

Several methods have been developed to directly reduce urban noise, such as noise protection facilities (CALIXTO – DINIZ – ZANNIN 2003), reducing road surface noise, road network designs (HATTA 2000), or indirectly reducing urban noise, such as by designating protected areas (BODNÁR – FODOR – LEHMANN 2006). Developing noise maps is a useful tool for these interventions since the maps highlight the most noise-affected areas.

Noise maps are digital maps that illustrate various noise sources: roads, railways, airports and industrial facilities, with the noise extent being determined from annual data (*Szeged City Strategic Noise Map and Action plan* 2017). This noise mapping method (FIEDLER – ZANNIN 2015) has been used to assess city noise mainly related to traffic (Figure 1), with agglomerations of more than 100,000 inhabitants (JOGTÁR 2004) being required to strictly follow the European Union noise map regulations (BERNDT 2007).

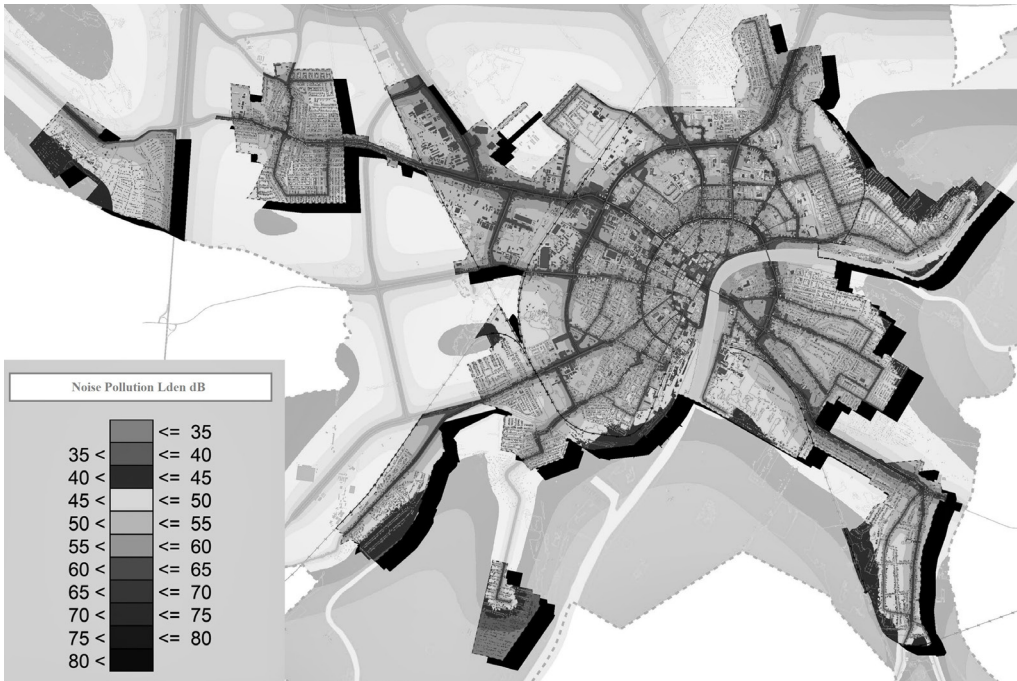


FIGURE 1. Szeged 2017 strategic public road noise map (Lden) (August 27, 2020)
(Source: Vibrocomp Kft.)

Noise maps, however, are only developed periodically, since it is difficult to measure noise and compare it with traffic data and the maps only highlight the major problems and it is relatively expensive and time consuming to produce such maps. While these maps can help policymakers identify, understand and analyse urban noise, their aim is not to explore the whole noise characteristics, but only to highlight those areas that can be defined as noisy based on the measurable parameters. As the measured noise levels and the noisy areas on the maps may not be in line with the noise perceptions of the local residents, the social conflicts associated with these noise issues are not revealed.

Thus in most research, the presentation of noise exposure is mostly limited to only one segment of the phenomena itself. In our research, we put more emphasis on the presentation of noise pollution from a social point of view, as noise perception interpreted as a complex urban problem in the perception of the population. Therefore, as the consequences of subjective noise perception has been generally neglected in most noise pollution related research, this paper used a qualitative approach to illuminate the importance of urban noise pollution and its effects on social conflicts.

METHODOLOGY AND RESEARCH AREA

This research sought to identify the complex noise effects in areas in Szeged that had a heavy noise burden. In addition to traffic-based noise pollution, it was found that there were also noise load related to leisure activities.

To determine the specific public attitudes to the different types of noise exposure (ANTAL, 1976), articles closely related to the noise topic in online media and the related public opinions and discourses were analysed. The duration of the study ranged from March to May 2017, and the articles examined were selected from the period between 2000 and 2017. This is due to the increased emphasis on urban noise pollution and its reduction in the new millennium, as well as the lack of a comprehensive city-wide noise map and action plan in previous years. After a keyword search (*noise, pollution loud, decibel*), 85 relevant articles were collected, 71% of which came from the Szeged-related news portals; *delmagyar.hu* (32 articles) and *Szegedma.hu* (29 articles). The rest came from other online sources. Code categories based on the type of noise source in the articles unfolded during the study, with three main categories being identified: 1: recreational, 2: transport, 3: industrial and construction. When articles could not be classified because no clear noise type was described in the article or it discussed urban noise exposure in general but the topicality demanded its use in the research, they were placed in an ‘other’ category. The articles, broken down into noise categories, were further subdivided according to which news portal they belonged to, which was important to examine the differences between the media belonging to different political parties. Thus, the categories ‘*délmagyar.hu*’, ‘*szegedma.hu*’ and “other articles” were developed, and then they were analysed in response to the observation criteria.

Thirty-four observational aspects were introduced to analyse our chosen articles (see Table 1). As not all articles fully met these criteria, some aspects were not always adequately covered. Whether a given situation was classified as a conflict depended on many factors. The observational aspects sought to shed light on the nature of the article itself, the locations mentioned in the articles, possible political tone, the social age groups, the possible noise measurements, the causes of noise conflicts, and the subjectivity of noise perception.

1.	Which location was the article / post about?
2.	(If the article / comments revealed), in the case of which type of residential building was there a complaint?
3.	Has the noise been perceived as annoying locally or away from the noise source?
4.	Has there been a political reference in that article?
5.	In the comments (if any), after how long did the topic move to political direction?
6.	Based on the political comments, what was the mood of the discourse like?
7.	Which political parties appeared in the articles and comments?
8.	In which noise category were political comments most frequent?
9.	Have the author or commenters criticized the policy measures?
10.	Did noise appear as a real problem?
11.	What were the most common problems?
12.	From whom did the commenters expect the noise problem to be solved?
13.	Have the parties taken steps towards the authorities / municipality in relation to the case?

14. Did noise emerge as an actual problem or other social conflict?
15. What type of conflict is in the article (based on noise categories)?
16. Has the same noise problem appeared in several articles?
17. In relation to which article were the commenters annoyed about the noise problem?
18. Has the author of the article taken a position on the topic or not?
19. Who did the commenters blame for the conflict?
20. Was there any prejudice in the articles / comments?
21. From how many perspectives did the author of the article examine the given noise situation?
22. Has the given sound source been compared with another noise source?
23. What age group appeared in the articles as a sufferer of noise?
24. What age group appeared in the articles as the cause of the noise?
25. Did the author of the article approach the topic from a subjective or objective side?
26. If the author of the article approached the topic from a subjective point of view, what was this tone?
27. Was there any visual content of the article?
28. Was there a comment on the picture?
29. Was there a quote in the article?
30. If so, from whom are they quoted?
31. Were the comments rather positive or negative related to the given article?
32. Has there been an official noise measurement in connection with the case?
33. Has the noise source exceeded the allowed limit value in the case?
34. In which dB category did the site appear on the urban noise map?

TABLE 1: Observational aspects of the research

In Szeged, the Tisza River is a significant influencing factor due to its excellent sound-conducting properties that transmit unwanted sounds to different parts of the city. A high level of car traffic in the densely built-up city centre area due to the appropriate parking facilities could be defined as a local problem. However, the slow city rotation speed due to the frequent traffic congestion during peak periods was a city problem especially at roundabouts and on boulevards. Another problem was the scattered appearances of green surfaces. Erzsébet Park in Újszeged, Széchenyi Square in the city center, Kálvária Square along Kálvária Avenue and the forest strip along the Tisza are significant green areas in the city that serve to reduce urban noise pollution (*Szeged City Strategic Noise Map and Action plan 2017*).

Several cultural programs (which are sources of noise) are held in Szeged: the Szeged Youth Days (SZIN) in August, attracting thousands of young people; the concerts, theatre performances and especially the Szeged Open-Air Festival in Dóm Square that are also held in summer; and the various dormitory days, freshman camps and University Days on the Hattyas and the Bridge Fair. There are also several establishments: the Tisza DOKK, the JATE club, the Hungi Vigadó and the Sing Sing Music Hall: that are the noisiest entertainment facilities in the city.

As it extremely important for local politicians to make Szeged as attractive as possible from a tourism point of view and to strengthen its image as a 'university city', they try to fill the city

with as many cultural programs and vibrant city life activities as possible. In recent decades, the shops on the city centre pedestrian streets have been replaced by restaurants with terraces, which provide recreation for young people and tourists; however, for those who live in this area, could be a reason of a new noise conflict (BOROS 2009; VEDRÉDI – BOROS 2012).

RESULTS - NOISE-INDUCED SOCIAL CONFLICTS IN SZEGED

Among the code categories developed, the most prominent noise source was leisure noise, which was found to have widely variable territorial features, with noise-related public complaints coming from almost every part of the city. The SZIN, held in Szeged every August, was found to be a key problem in both the articles and the related comments, with the Szeged Partfűrdő Camping (Coastal Bath Camping), in particular, being noted as being a noisy place. Other associated problems mentioned were the deterioration in the cityscape, the littering, the shattered glass and vandalism. Due to Szeged's geographical characteristics, the festival noises can be perceived in the immediate vicinity of the noise source and in more distant parts of the city.

The age group that suffered the most from the festival noise depended mostly on individual perceptions; however, retirees, families with small children and people who worked in the summer made the most noise related complaints, with the noisemakers at SZIN being identified as the young people and university students visiting the festival. If a particular age group was discussed in the articles or posts, in most cases a prejudiced social attitude was observed in the remainder of the posts. For SZIN, for example, a discourse developed that attributed the noise problems during the festival to certain groups of people. These debates were mostly fuelled by two groups: the first group that defended and supported the young people's entertainment opportunities, while the another blamed retirees for the noise conflicts that developed but also criticized the way and quality of young people's entertainment. Many commenters believed that these noises should be accepted by the people living in this area during the festival period from April to October (e.g. Szeged Wine Festival, Craft Beer Festival, Liget Festival, university freshman camps, Wine Square or Bridge Fair etc.).

When there was a political reference in either the article or comments, more heated debates unfolded. As large-scale urban events such as SZIN are often influenced by politics, most articles had at least by one political reference in the comment section. However, if the political remarks were made in the article itself, a more heated discourse evolved. Based on our research, most policy debates concerned community noise and most of these complaints were made by local opposition parties or their representatives. Therefore, the noise appeared as an 'excuse' to blame the city administration and was not focused on any one group

City noise were also found to be the result of entertainment opportunities that had been organized by the University of Szeged in the lower part of the city at the JUGYU club, which every year has been a recurring source of noise conflicts with the residents. Locals have complained about the noise and have previously signalled to their representative that the students are littering and using the area as a toilet. Social problems were also raised involving young people, with a majority of the commenters tracing the problems back to the deteriorating standard of education and 'today's youth is incapable of cultured entertainment'; therefore, there was also a

prejudiced blaming attitude. Many commenters articulated their opinion that this particular age group represented a plethora of general and mostly negative city-wide problems: deteriorating quality of education; deteriorating environment; and ‘incompetence of political leadership’.

Other community and neighbourhood noise pollution was found to be caused by dormitories, sports centres, spaces designed for children and small shops and bakeries operating in the garages of panel houses.

Traffic noise was also mentioned in different parts of the city. Noise from roads, trains and planes all caused significant problems. Road traffic noise was mainly caused by motorists and truckers, with the latter causing noise burdens on József Attila boulevard, the roads leading into the city and Római boulevard. Adequate pavement quality is essential on these high-traffic road sections; however, there were several complaints about the noise from the protruding gutter covers as well as from the traffic dust, other pollutants, or vehicle-induced vibrations, which in most cases caused significant damage to buildings along the high-traffic roads. The changed traffic order in given areas also caused disagreements between the local residents and drivers. The transformation of the former, calm environment into a noisy one generated conflict, with a greater number of posts on these articles expressing annoyance.

The elements of the third category were identified as manifestations construction and industrial noise. Articles on construction sites in the city appeared periodically depending on where the renovation or construction was taking place. Identified problems were brownfield investments, new building construction, maintaining an existing building and overnight roadworks. In some cases, the local residents were seeking compensation for the dust and noise caused by the morning-to-evening work that had lasted for almost a year. They also complained that the outlook from their apartments had deteriorated after the construction which had resulted in a value decline in their properties. Therefore, the industrial noise load in Szeged was found to be negligible, with only a few complaints being received about the noise of the heavy industrial plant. In one case, the residents had visited the local representative and the plant owner, but no significant progress had been made in resolving the conflict.

Several articles were placed in the ‘other’ category due to their complexity. In a certain part of a city, several independent problems can cause conflict. An example is the complex noise problems of the people living in Tarján district, with complaints ranging from the ‘noisy young people’ to the eradication of green spaces on the roadsides. Another article in this category described the background to the 2017 Strategic Noise Map and its action plans. Some articles discussed urban noise in general and gave information about the dangers and measurement possibilities of noise pollution. Other articles drew the public attention to the other harmful effects of noise pollution and workplace noise exposure.

If a precise location was classified as noisy in the articles and comments, it was plotted on a map and its decibel values displayed on the strategic noise map of Szeged for comparability (Figures 2A, B). The noise sources were mostly leisure noise sources. Based on their territorial characteristics, the noise complaints were mainly limited to the city centre, ‘Felsőváros’, ‘Alsóváros’ (including the railway station and the university area), high-traffic roads and the Újszeged side of the Tisza river (Erzsébet Park, Odessa district). These areas also had high decibel values on the strategic noise map, with an average noise load of 60-65 dB.

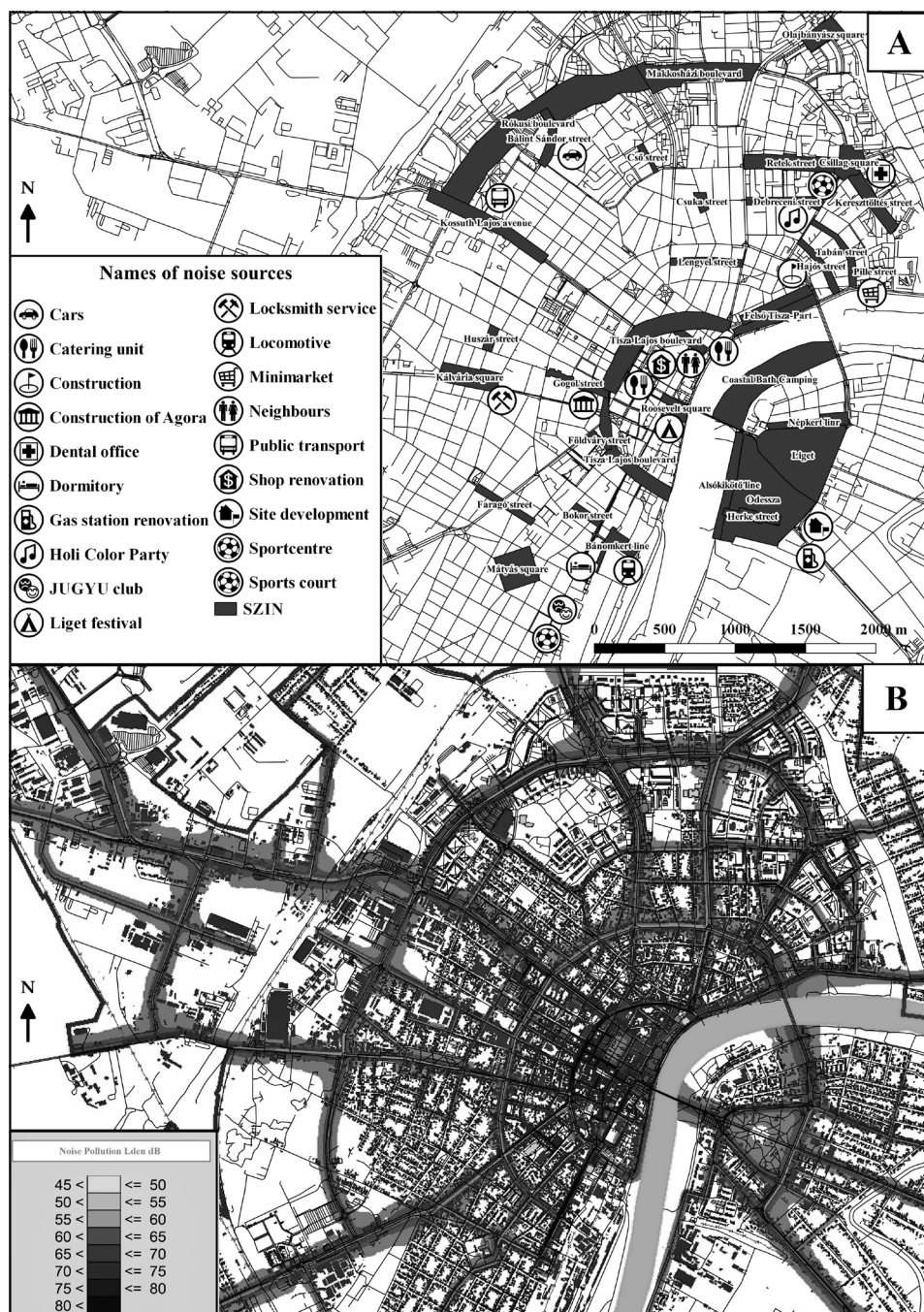


FIGURE 2A. Areas considered noisy in Szeged in the examined articles (Source: own editing);
FIGURE 2B. Detail of the strategic noise map of downtown Szeged for 2017 on public roads (Lden) (Source: own editing by Vibrocomp Kft.)

CONCLUSION

This noise pollution research explored the opinions of local residents in online media content and posts using a content analysis method to identify the social conflicts in the case city, Szeged, Hungary. Relevant online articles and the associated comments dealing with noise from 2000 to 2017 were analysed to determine the types of noise, the specific issues, and the specific characteristics, after which a strategic noise map was developed and compared.

Based on the results of the online media content analysis, the most significant problem in Szeged seems to be the noise pollution related to leisure activities, which due to the general geographic characteristics of the city were evident in the immediate vicinity of the noise source and also in different parts of the city, with both monotonous, long-lasting noise (e.g. traffic noise) and shorter and intense sound sources (e.g. festival noise) being complained about. In most cases, the noise exposure was a 'by-product' of some other social conflict, that is, people used the noise to complain about other social issues such as exclusion, prejudice, or politics. The focal noise conflict points in Szeged were also identified as downtown, the Alsóváros, the Felsőváros and the Odessa district of Újszeged.

As not all the opinions of the local residents in the immediate vicinity of a given noise source were included in the articles and associated comments, a future research could involve these opinions as well, using surveys and mental mapping.

Based on our results, the perception of urban noise pollution manifests itself beyond its measurable parameters in a much more complex way in the urban population, and its social perception is not limited to a mere problem. Thus, to ensure a more liveable urban environment for everyone in Szeged, noise abatement policies should not only deal with the traffic noise loads appearing on the strategic noise map but should also be based on the opinions of the local residents.

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